

REMARKS

Claims 1-20 are presently in the application.

The title of the invention has been amended as suggested by the examiner.

Claims 3, 4 and 8 have been allowed. Claims 12, 13, 17, 19 and 20 have been indicated to contain allowable subject matter.

Claims 10 and 11 have been rejected under 35 U.S.C. 102(b) as anticipated by Boscolo (US 4,675,660).

Reconsideration of this rejection is respectfully requested.

Boscolo teaches a method and apparatus for measuring a liquid level in a container, for example, a cardboard container for milk. Col. 1, ll. 1-41. The apparatus illustrated in Fig. 1 includes a cardboard container 11, a filler tube 12, a transmitter transducer 15 and a receiver transducer 16. Boscolo explains that the transmitter transducer 15 is positioned in contact with an upper portion of the filler tube 12. The transducer 15 thus coupled to the filler tube 12 causes an ultrasonic vibration to be transmitted through the filler tube 12 to a liquid 13 and thus to a wall of the cardboard tube 11. The receiver transducer 16 is located outside the cardboard tube 11 and can pick up an ultrasonic signal emitted by the wall of the cardboard tube 11 itself. See, col. 4, ll. 16-24.

Claim 10 is directed to a device for measuring the level of a fluid in a container (1), the container (1) including a sound guide conduit (2) disposed in the container, a fluid feeding device (6) in the container, and at least one ultrasonic transducer (3) disposed near one end of the sound guide conduit (2) for generating ultrasonic pulses and for receiving the ultrasonic pulses reflected in the region of the surface of the fluid in the container, the improvement wherein the sound

guide conduit (2) and the ultrasonic transducer (3) are disposed in the container (1) on an outer circumference of the fluid feeding device (6).

Fig. 1 shows a fluid feeding device 6, for instance a fuel pumping device, with a device according to the invention for measuring a fill level in a container 1, for instance a fuel tank of a motor vehicle. The device comprises a sound guide conduit 2 and an ultrasonic transducer 3. The sound guide conduit 2 and the ultrasonic transducer 3 are disposed on a fluid feeding device 6, and both the sound guide conduit 2 and the ultrasonic transducer 3 are shown to be within the container (1).

The examiner reads the claimed “sound guide conduit disposed in the container” and the “fluid feeding device” on the same element, namely, the filler tube 12. It is improper to read two separately claimed elements on the same element in the prior art.

In addition, claim 10 has been amended to recite that both the sound guide conduit (2) and the ultrasonic transducer (3) are disposed in the container (1) on an outer circumference of the fluid feeding device (6).

In Boscolo, the receiver transducer 16 is clearly located outside the cardboard tube 11. Thus, Boscolo does not teach or suggest placing both the sound guide conduit and the ultrasonic transducer inside the container.

To support a rejection of a claim under 35 U.S.C. 102(b), it must be shown that each element of the claim is found, either expressly described or under principles of inherency, in a single prior art reference. See Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984).

Boscolo does not teach a device for measuring the level of a fluid of the type recited in claims 10 and 11 which includes both a sound guide conduit disposed in the container/fuel tank and a fluid feeding device in the container/fuel tank. Further, Boscolo does not teach placing both the sound guide conduit and the ultrasonic transducer inside the container. Thus, Boscolo does not anticipate claims 10 and 11.

Claims 1 and 2 have been rejected under 35 USC 103(a) as unpatentable over Boscolo in view of Keller (US 6,629,457).

Claims 5, 7, 14 and 16 have been rejected under 35 USC 103(a) as unpatentable over Boscolo in view of Keller and Cummings (US 5,471,872).

Claims 6, 9, 15 and 18 have been rejected under 35 USC 103(a) as unpatentable over Boscolo in view of Keller and Shuler et al (US 4,090,407).

Claim 1 has also been amended to recite that both the sound guide conduit (2) and the ultrasonic transducer (3) are disposed in the fuel tank (1) on an outer circumference of the fluid feeding device (6).

Keller clearly teaches that the ultrasonic transducer (8) is arranged on the outside of the fuel tank (1). See, col. 4, ll. 13-17.

Cummings teaches a sound guide conduit 22 located in a container 12 and an ultrasonic transceiver 8 which both transmit and receives acoustic waves located outside the container.

Shuler et al teaches a device for measuring the water level in, for example, a lake. See, col. 1, ll. 6-8. Thus, Shuler et al does not teach, suggest or illustrate any container or fluid feeding device, much less that both a sound guide conduit and an ultrasonic transducer are disposed in the container on an outer circumference of the fluid feeding device.

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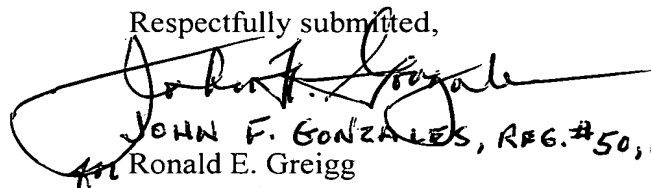
To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). None of Boscolo, Keller Cummings and Shuler teaches or suggests a device for measuring the level of a fluid of the type recited in claims 1 and 10 which includes a fluid feeding device disposed in a container, a sound guide conduit disposed in a container and an ultrasonic transducer disposed in a container with the sound guide conduit and the ultrasonic transducer disposed on an outer circumference of the fluid feeding device.

Accordingly, claims 1 and 10, and the claims dependent thereon, are not rendered obvious by the combined teachings of Boscolo, Keller, Cummings and Shuler.

The Commissioner is hereby authorized to charge any/all fees associated with this communication to Deposit Account 07-2100.

Entry of the amendment and allowance of the claims are respectfully requested.

Respectfully submitted,


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